

WISCONSIN ENDANGERED RESOURCES REPORT # 84

REINTRODUCTION OF THE TRUMPETER SWAN
PERFORMANCE REPORT, 1 July 1989 to 30 June 1990

by Sumner W. Matteson

SUMMARY

The Wisconsin Department of Natural Resources continued the trumpeter swan recovery program.

Lead poisoning at 2 of 4 captive-rearing sites during the winter of 1989-90 led to their abandonment. Lead poisoning led to the deaths of 4 of 17 yearlings maintained at a captive-rearing site in southern Polk county. Four of 13 cygnets were lost at the Oakhill Correctional Institution site in southern Dane county.

Cross-fostering program has been discontinued because it is not cost-effective and success was poor during the summers of 1987 and 1988.

Forty Alaskan trumpeter swan eggs were collected and transferred to the Milwaukee County Zoo. Thirty-nine (97%) of the eggs hatched out. Twenty of these birds were sent to the Crex Meadows Wildlife Area research study. The remainder were maintained at the Zoo for 5 weeks and then moved outdoors to fence-enclosed pens. At 13 weeks of age the captive birds were released at fence-enclosed captive-rearing ponds.

Continued public information and education activities included development of an annual video documentary on the program, talks at bird clubs, conferences, citizen groups, and nature centers. Coverage of the state's recovery efforts has been excellent and the program is receiving increasing public support.

No mute swan control efforts took place during this report period.

Appendix B is not included in this report.

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WISCONSIN DEPARTMENT OF NATURAL RESOURCES

PERFORMANCE REPORT

REINTRODUCTION OF THE TRUMPETER SWAN

REPORTING PERIOD: 1 JULY 1989 TO 30 JUNE 1990

Prepared by Sumner W. Matteson, Nongame Biologist,
Bureau of Endangered Resources

JOB:	216.1	Establish overwintering sites
	216.2	Coordinate cross-fostering program
	216.3	Coordinate Alaskan program
	216.4	Develop public I and E program
	216.5	Assist Mute Swan Control

Job 216.1: Identify and establish overwintering (captive-rearing) sites for captive-raised Trumpeter Swans.

Lead poisoning at 2 of 4 captive-rearing sites during the winter of 1989-90 led to their abandonment. Both of these sites had been selected because they were relatively isolated from people and were not known to have spent lead shot or lead sinkers based on random sampling. With no recent hunting history, both of these sites were promising. Nevertheless, lead poisoning led to the deaths of 4 of 17 yearlings maintained at a captive-rearing site in southern Polk County, close to the northern St. Croix County border. The remaining yearlings were successfully treated at the Raptor Center and transferred to a temporary captive-rearing site at the town of Clear Lake in southeastern Polk County. A fifth yearling ingested a lead sinker and died from lead poisoning while at this site. The remaining 12 birds were released to the wild in April with 5 other subadults that were overwintered with no health problems at a site in northwestern St. Croix County (see attached Updates).

At the second contaminated captive-rearing site--this located at the Oakhill Correctional Institution near Oregon in southern Dane County--4 of 13 cygnets were also lost. The surviving cygnets were successfully treated for lead poisoning and transferred to the fourth (and clean) captive-rearing site, located near Pewaukee in eastern Waukesha County and owned by General Electric Medical Systems. Here, the 9 treated cygnets were placed with 10 cygnets already at the site.

Plans were developed for the construction of a second GE captive-rearing site. This site, to be ready for cygnets by October 1990, will be able to hold up to 20 swans. In addition, the St. Croix County captive-rearing site has been rebuilt and will be ready to receive swans by 1 October. Plans for 1990-91 include the development of a captive-rearing site in Dane County and one in western Wisconsin. This would bring the total number of captive-rearing sites to five by 30 June 1991. A schedule for the use of these sites (and a sixth) is presented in Table 1 (attached).

Job 216.2: Coordinate the development of the cross-fostering program.

This job has been discontinued because it is not cost-effective and success, measured by the number of young to survive to at least one year of age, was poor during the summers of 1987 and 1988. Only 1 young from 35 cross-fostered eggs survived to 1 year of age. Snapping turtle predation, lead poisoning, and cob aggression toward fostered cygnets were responsible for the deaths of fostered cygnets. No monies were allocated to this job during the reporting period.

Job 216.3: Obtain permission from respective flyway councils, obtain permits to collect 40 eggs from the U.S. Fish and Wildlife Service (USFWS) and the Alaska Department of Fish and Game; make arrangements with private transportation to the state of Alaska to collect 40 eggs in June; continue implementation of cooperative agreements as necessary with the state of Minnesota, and the Milwaukee County Zoo; collect and transfer 40 Alaska Trumpeter Swan eggs to the Milwaukee County Zoo; provide direction for the rearing of "Alaskan" cygnets at fenced captive-rearing sites; coordinate the release of subadults at selected wetland sites.

As in the previous year, the coordination and collection of Alaskan Trumpeter Swan eggs went well. Terry and Mary Kohler donated the use of the Windway Capital Corporation jet as well as their time in piloting the jet to Glennallen, ca. 110 miles north of Valdez in southeastern Alaska. Collection began on the morning of 11 June. The USFWS plane used in the operation, however, proved too heavy to land on the smaller pothole lakes where most pairs nested. As a result, after 13 hours only 19 eggs were collected. A decision was made to hire 2 local "bush" pilots with Super Cub planes to finish the collection the following afternoon; these planes would work off of a larger lake where the USFWS plane was stationed. Once a suitcase box, heated by rubber hot water bottles, was full (capacity: 14 eggs), the USFWS plane would return to base camp at the airport and the box would be handed to the Kohlers. The pilot would return with another suitcase box and await more eggs from the collection

teams.

On 12 July the procedures outlined above proved highly effective. It took only 3 hours to collect the remainder of the eggs because all of the smaller lakes were accessible.

The return flight to Milwaukee took 11.5 hours. Of the 40 eggs placed in artificial incubators at the Milwaukee County Zoo, 39 (97%) hatched out, this was one more egg to hatch out than last year and matches the record success experienced in 1989. All cygnets hatched out between 13 and 27 June. Twenty of these birds were earmarked for an ongoing research study at the Crex Meadows Wildlife Area in northwestern Wisconsin (WDNR Bureau of Research study 322) and the remainder were maintained at the Milwaukee County Zoo in large brooder boxes for the first 5 weeks, then moved outdoors to fence-enclosed pens. At about 13 weeks of age the captive birds will be released at 2 fence-enclosed captive-rearing ponds.

In April, the WDNR released the largest number (17) of subadults to date--these in northwestern Wisconsin. By the end of the reporting period, 15 subadults were alive and well; 2 died from lead poisoning and heart failure, respectively; the latter while on the operating table during treatment for a bad leg at the Raptor Center.

Job 216.4: Develop and disseminate a public information and education program to enhance awareness of the reintroduction effort.

Continued public information and education activities included development of an annual video documentary on the program, talks at bird clubs, conferences (Appendix A), citizen groups, and nature centers. Educational efforts were also spearheaded through the Friends of the Trumpeter Swan. Earth Day activities at the General Electric Medical Systems Facility near Pewaukee drew over 2,000 participants to view the "Alaskan" Trumpeters held at the captive-rearing pond. Press releases have been picked up regularly by the state's major newspapers as well as many local papers. Coverage of the state's recovery efforts has been excellent and the program is receiving increasing public support.

Job 216.5: Assist the Bureau of Wildlife Management with the control of feral Mute Swan populations.

No control activities occurred during the reporting period. No monies were allocated to this job. The need to remove the Mute Swan from the state's list of protected species was documented and a WDNR Mute Swan Committee established to draft a control policy.

Table 1. Schedule - Captive-rearing Sites for Trumpeter Swans

<u>Site</u>	<u>1990</u>	<u>91</u>	<u>92</u>	<u>93</u>	<u>94</u>	<u>95</u>	<u>96</u>	<u>97</u>	<u>98</u>
GE #1	X	r	X	X	r	X	X	r	-
GE #2	X	X	r	X	X	r	X	X	r
Somerset	X	X	r	X	X	r	X	X	r
Western WI*	-	X	X	r	X	X	r	-	-
NWD**	-	-	X	X	r	X	X	r	-
Oakhill***	-	X	X	r	X	X	r	-	-

NWD = Northwest District

r = Swans released in spring; no new birds brought to captive-rearing site during current year. Allows site to be fallow for 1 year per S. Hurley's recommendations.

X = Swans at site.

- = No swans present at site.

* Site may be in Western District (St. Croix Co.) or NWD (Polk Co.), or in another county in one of these districts. D. Evenson, K. Belling, and S. Matteson agreed informally on 3 April that the "Western WI" site, and "Somerset" site should be in an area where 1 LTE could maintain birds at these sites. The Western WI site is scheduled to go on-line next year.

** At the recent NWD program review meeting, there was interest in establishing a NWD site in the Park Falls area. Remember, a newly created (within the last 2 years) pond is best because of the probability of the absence of lead shot and lead sinkers.

*** A new pond most likely will be dug at the Oakhill Correctional Institution. The Oakhill administration and the WDNR will work together on this project.

WISCONSIN'S TRUMPETER SWAN RECOVERY PROGRAM

Presented by Sumner W. Matteson, Nongame Biologist,
Bureau of Endangered Resources, Wisconsin Department
of Natural Resources, at the Twelfth Trumpeter Swan
Society Conference, 7 September 1989,
Minneapolis, Minnesota

The Wisconsin DNR completed its Trumpeter Swan Recovery Plan in 1986 and began implementation in 1987. Our recovery goal is to establish at least 20 breeding and migratory pairs by the year 2000. The recovery plan covered three strategies: cross-fostering; captive parent-rearing of cygnets; and isolation-rearing of Alaskan cygnets. These recommended techniques have showed some degree of success in other Trumpeter Swan reintroduction programs and provided us considerable latitude in working towards our recovery goal.

We began with cross-fostering. Our experience proved to be quite negative. In 1987, we placed a total of 20 Trumpeter Swan eggs under 4 pairs of Mute Swans. No cygnets fledged (Mossman and Matteson in press).

In 1988, we placed a total of 15 eggs under 3 Mute Swan pairs. Although all of the eggs hatched only 2 cygnets survived to fledge and both suffered from lead poisoning (Mossman in press). We discontinued cross-fostering in 1989. It has not proved cost-effective given our limited resources.

A second prong of our recovery approach is the captive parent-rearing of cygnets. We expect that 3 young, captive pairs in southern Wisconsin will eventually breed and produce young, perhaps beginning in 1990 or 1991. Their cygnets would be held in captivity until age 23 months, then be paired with unrelated birds and released at selected wetland sites.

Currently, the major emphasis in our program involves the release of 23-month-old subadults, which originate as eggs from either avicultural or wild Alaskan parents. Eggs are hatched in artificial incubators and the cygnets are raised for 3 months with minimal human contact. They are then wing-clipped and released to enclosed ponds, where they remain until age 23 months. When they reach this age they are released as wing-clipped pairs at wild, potential breeding sites.

In the future, our program could change significantly depending on the outcome of on-going research involving the release of cygnets that are imprinted on life-sized decoys, raised in a semi-wild setting, and allowed to fly free at fledging (Abel in press).

The year 1989 marked the first of 8 years the Wisconsin DNR planned to fly to Alaska to collect Trumpeter Swan eggs. Our goal in 1989 was to collect 60 eggs, 40 for Wisconsin and 20

for Michigan's program. Bureau of Endangered Resources Nongame Section Chief Randy Jurewicz, Michigan biologist Joe Johnson, and I flew in a Cessna Citation 501 SP, a private jet piloted by Terry and Mary Kohler of the Windway Capital Corporation, Inc. We departed on 5 June and 12 hours later arrived in Fairbanks.

On 6 June, USFWS biologist Rod King flew Randy and me out to a base camp on the Minto Flats, a vast wetland complex several thousand acres in size. Here, at a USFWS cabin, Randy heated hot water to prepare 3 black box-like suitcases (loaned by the Minnesota DNR) that we had adapted to house Wisconsin's 40 eggs (14, 14, and 12 eggs, respectively, per suitcase). Randy was also "baby sitting" 2 wooden crates designed and built by Joe Johnson that would receive the first 20 eggs I collected.

The procedure we followed was the same adhered to during the previous 3 years when the Minnesota DNR had collected Trumpeter Swan eggs in the Minto Flats. We taxied as close as we could to a nest marked on a topographical map and identified by Rod well before our June visit. At each nest I marked each egg with a letter, signifying the individual nest, and a number beginning with 1 until all eggs in the nest were assigned with the letter and numbered sequentially. I measured each egg with a caliper, and candled each egg with a field candler provided by the Minnesota DNR.

Candling consisted of: a) holding the egg vertically in the palm of the left hand with the more rounded, larger end of the egg positioned facing toward the sun; b) holding a "coffee can" (raised toward the sun) with holes cut in black rubber stretched over both ends of the can that allowed light to illuminate the air cell when the egg was held in front of the can; and c) examining the egg to determine if there was a sharp demarcation line between the air cell and the dark mass of the embryo and if much of the egg appeared dark when held up to the light; this indicated a viable embryo in the later stages of development. Nonviable or "dead" eggs often appeared largely translucent or opaque when held up to the light, or had an irregular or poorly defined demarcation line between the air cell and embryo as well as translucent areas and no discernible blood vessels.

In accordance with USFWS guidelines, 2 fertile eggs were left in each nest. Each collected egg was placed in a small suitcase. Once in the plane, the eggs were transferred into one of the 3 large black suitcases. When this suitcase was full, we flew back to base camp and Randy met us to take the full suitcase and hand us an empty one.

By 1500 hrs we had collected Joe Johnson's 20 eggs. At a pre-arranged time he arrived at the cabin in a chartered bush plane and transported the eggs back to his motel room.

By 2330 hrs all 60 eggs had been collected. Three of these eggs were unknowingly collected from what turned out to be a Tundra

Swan nest. Joe Johnson also later detected (en route to Milwaukee), by smell, that one of the collected Trumpeter eggs was addled, leaving Wisconsin with a total of 36 viable Trumpeter eggs. It took us a total of 13 hours to collect all 60 eggs; longer than expected because 14 of 26 Trumpeter nests contained one or more addled eggs. An extensive and rapid snow pack melt had resulted in the flooding or near-flooding of several nests.

The clutch size at the 26 Trumpeter nests ranged from 4-6, with a mean of 5.1 eggs/nest. A total of 101 of 134 (75%) Trumpeter Swan eggs that I examined were judged to be viable (including the one egg later detected by Joe Johnson's nose as "bad").

The return trip to Milwaukee took 10 hours. A Radio Shack digital thermometer with a heat sensor attached to a chord proved reliable in providing accurate temperatures for each of the Wisconsin suitcases. We placed the sensor near the center of the suitcase and recorded readings hourly from outside the suitcase. The temperature of the three Wisconsin boxes averaged 92.5 degrees F. (range=88.9-95.6), 90.8 degrees F. (range=80.0-97.2), and 86.6 degrees (range=79.9-89.2) F. We were especially concerned about the readings of the third suitcase because Minnesota DNR personnel had advised us to keep the temperature reading in the low 90s during the flight.

As it turned out, our fears were unwarranted. Of 39 eggs placed into 2 incubators at the Milwaukee County Zoo, 38 (97%) hatched - all between 11 June and 27 June. The Tundra Swan eggs were the first to hatch. The Trumpeter Swan eggs began to hatch on 13 June.

Credit for the excellent hatching success goes, in large part, to Milwaukee County Zoo curator Ed Diebold and his staff. The contribution of the Kohlers to our effort was also important because of the few stops needed during the speedy return trip: 13 hours after the last egg had been collected all Wisconsin eggs were in zoo incubators. And who knows, maybe there was a little skill in the field candling as well.

Last but certainly not least, if it hadn't been for Rod King's expertise in flying onto and off of the many lakes we visited, none of the above would have been possible.

In Michigan, I was pleased to learn that 19 of their 20 eggs successfully hatched. In total, 54 of 56 (96%) Alaskan Trumpeter Swan eggs placed in artificial incubators successfully hatched. All 3 Tundra Swan eggs also hatched.

Except for 10 Alaskan cygnets used in the experimental research project (these birds were flown to the Crex Meadows Wildlife Area in northwestern Wisconsin at age 2-6 days), the remaining Trumpeter Swan cygnets were maintained at the Milwaukee County Zoo until age 5 weeks, at which time they were transported to 2 captive-rearing sites in southern Wisconsin.

All in all, 1989 has been a very good year. Thirty-two of 35 Alaskan cygnets survive: 9 in the experimental flock and 23 in the captive flock. The experimental flock also includes 8 cygnets that were hatched from eggs produced by captive parents. On 14 April, we released our first 6 captive-reared subadults in the vicinity of Crex Meadows. Three have survived.

For the first time in over a hundred years a pair of Trumpeters nested in Wisconsin and apparently produced 2 young. This pair, refugees from the Hennepin Parks flock, nested in western Wisconsin. What we're seeing is a trend that began in 1985 when a Hennepin Parks pair displaced a pair of Mute Swans on the Gordon Flowage in Douglas County in northwestern Wisconsin.

During the spring of 1990, a total of 18 subadults will be released. We will continue with our experimental release of cygnets, and will also add more cygnets to our captive flock for eventual release as subadults. And perhaps Trumpeters from Minnesota will continue to come on over. The influx of these birds gives new meaning to our Department of Tourism's slogan: "Escape to Wisconsin."

Sumner Matteson
1 December 1989